Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form

1. Applying for (select one):
   - ☒ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
   - ☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
   - ☐ (c) DWR Water Use Efficiency Project

2. Principal applicant (Organization or affiliation): East Bay Municipal Utility District

3. Project Title: X-RayProcessor Recycling Capital Outlay Project

4. Person authorized to sign and submit proposal:

Name, title	Dennis M. Diemer General Manager
Mailing address	P.O. Box 24055, Oakland, CA 94623-1055
Telephone	(510) 287-0101
Fax.	(510) 287-0188
E-mail	

5. Contact person (if different):

Name, title.	Leann Gustafson, Water Conservation Representative
Mailing address.	P.O. Box 24055, MS #48, Oakland, CA 94623-1055
Telephone	(510) 287-0898
Fax.	(510) 287-1883
E-mail	lgustafs@ebmud.com

6. Funds requested (dollar amount): $138,300

7. Applicant funds pledged (dollar amount): $112,500

8. Total project costs (dollar amount): **$250,800**

9. Estimated total quantifiable project benefits (dollar amount): **$441,450**
   Percentage of benefit to be accrued by applicant: **%100**

Percentage of benefit to be accrued by CALFED or others: **%100**

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

10. Estimated annual amount of water to be saved (acre-feet): **177 acre-ft/year**

Estimated total amount of water to be saved (acre-feet): **1,700 acre-feet**

Over ___ years **10 years**

Estimated benefits to be realized in terms of water quality, instream flow, other: **$0-$25/AF**

11. Duration of project (month/year to month/year): Oct. 2002-Sept. 2003

12. State Assembly District where the project is to be conducted: 11,14,15,16,18

13. State Senate District where the project is to be conducted: 7,9,10

14. Congressional district(s) where the project is to be conducted: 7,9,10

15. County where the project is to be conducted: Alameda & Contra Costa

16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: January 2002

17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:

- ☐ (a) city
- ☐ (b) county
- ☐ (c) city and county
- ☐ (d) joint power authority
- ☒ (e) other political subdivision of the State, including public water district
- ☐ (f) incorporated mutual water company

DWR WUE Projects: the above entities (a) through (f) or:

- ☐ (g) investor-owned utility
- ☐ (h) non-profit organization
- ☐ (i) tribe
- ☐ (j) university

☐ (k) state agency
☐ (l) federal agency

18. Project focus:

☐ (a) agricultural
☒ (b) urban

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13 Agricultural Feasibility Study Grant capital outlay project related to:

☒ (a) implementation of Urban Best Management Practices

☐ (b) implementation of Agricultural Efficient Water Management Practices

☐ (c) implementation of Quantifiable Objectives (include QO number(s)

☐ (d) other (specify)

DWR WUE Project related to:

☒ (e) implementation of Urban Best Management Practices
☐ (f) implementation of Agricultural Efficient Water Management Practices
☐ (g) implementation of Quantifiable Objectives (include QO number(s))
☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
☐ (i) research or pilot projects
☐ (j) education or public information programs
☐ (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

☐ (a) yes

☒ (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____	_____	_____
Signature	Name and title	Date

B. Scope of Work

RELEVANCE AND IMPORTANCE

1. Executive Summary.
   Hospitals commonly have several medical x-ray processors operating 24 hours per day, 365 days per year. Published water flow rates for the 35 units on the market range from .2 to 2.5 gallons per minute (gpm) or 105,120 to 1,314,000 gallons per year (gpy). Units operating at 2.5 gpm are very common while units operating at .2 gpm are rare.

   A new technology is available that, when installed on x-ray processors, recirculates the water thereby reducing consumption to approximately 35,000 gpy. This project will directly install the equipment by retrofitting twenty-five (25) existing x-ray processors with this technology. Studies conducted throughout California in the last year verify the savings per unit installed at an average of 1,000,000 gallons per year.

   It would be locally cost-effective to install these machines. The funds solicited in this grant would be used to subsidize these installations. The end-users would be responsible for on-going maintenance fees associated with these units.

2. Statement of Issues.
   As urban agencies and signatories to the California Urban Water Conservation Council's Memorandum of Understanding, there is a commitment to implementing the urban "Best Management Practices" in an effort to do our part to reduce the negative impact on the Bay-Delta. This project directly relates to BMP #9 directing reduction in Commercial, Industrial and Institutional end uses.

3. Nature, Scope and Objectives.
   The results of this project will be to increase the rate of installation and end-user familiarity with this tested technology. The regional conservation benefit of the units installed by the participating agency is calculated to be approximately 1700 AF. This assumes a measured life of 10 years.

   In addition to regional water conservation implementation of this measure would help to insure increased the reliability of continued medical service after a major seismic event. Following the Northridge earthquake, these recycling units allowed hospitals to maintain life-saving diagnostic imaging with only 15 gallons of water per photo processing machine. Scarce water resources were saved for critical hospital operations.

TECHNICAL/SCIENTIFIC MERIT, MONITORING, AND ASSESSMENT

4. Methods, procedures and facilities.
   Film processors must rinse processing chemicals from the film prior to the dryer section of the machine. In most machines, the rinse section of the processor receives a constant supply of running water, up to 2.5 gpm.

   The Water Saver/Plus is a water-recycling device that is used in conjunction with x-ray film processors. The Water Saver/Plus holds 15 gallons of water and circulates

the water through the rinse section of the processor. A timer releases a set amount of fresh water, up to 4 gallons per hour, into the unit for proper temperature control. No operational changes are necessary to use this technology. *There is no additional chemical impact to the environment to operate this equipment*. The maintenance of the unit requires a cleaning every 1 to 2 weeks depending on local algae conditions. The unit is drained, rinsed, scrubbed, rinsed again and household bleach is added as an algaecide. Cleaning costs of approximately $50/week or $1,350 annually will be born by the end-user. The device stands 26" high with a 15" x 15" footprint and uses up to 110 volts.

5. Schedule.

TIME	TASK	BUDGET ITEM	AMOUNT
Oct. 2002	Execute final contract	10 hours, agency time	$960
Oct. – June. 2003	Finalize arrangements with hospitals and participating agencies	274 hours, agency time	$26,304
Jan. 2003	1st Quarter Report	14 hours, agency time	$1,344
Oct. - July 2003	Retrofit x-ray processor equipment	(all vendor costs and equipment in one sum)	$207,600
Oct. - Sept. 2003	Administer contract details with participating agencies.	24 hours, agency time	$2,304
July 2003	All records submitted to lead agency	8 hours, agency time	$768
April 2003	2nd Quarter Report	14 hours, agency time	$1,344
Oct. – July 2003	Customer follow-up, monitoring, and assessment	50 hours, agency time	$4,800
July 2003	3rd Quarter Report	14 hours, agency time	$1,344
August 2003	Submit results for publication Presentations (if any requested)	28 hours, agency time	$2,688
Sept. 2003	4th (and Final) Quarter Report	14 hours, agency time	$1,344
Total			**$250,800**

6. Monitoring and assessment.

A water meter (a Neptune T-10, brass, 5/8") will be affixed to the existing intake line for period of at least one week prior to the installing the new equipment and remain on the line for at least one week after the recirculating unit is installed. The meter will be read three times during the monitoring period.

C. Outreach, Community Involvement, and Information Transfer

1. Disadvantaged communities. EBMUD serves substantial portions of disadvantaged communities. Every effort will be made to seek participation from hospitals or medical facilities located in and serving these communities.

2. Training, employment, and capacity building potential.
   Not applicable.

3. Disseminating information.
   Results of the conservation efficiencies of these implementations will be submitted to conservation-related organizations (such as AWWA's tri-annual conference and The California Department of Water Resource's *Water Conservation News*) for publication. Results will also be reported to the CUWCC and disseminated among its members. Effort will be made to introduce other local water agencies to this technology.

4. Letters to government entities.
   Not applicable. All participants are water agencies.

D. Qualifications of the Applicants, Cooperators, and Establishment of Partnerships

1. Resumes.
   A resume for the agency project manager is inserted at the end of this proposal: Leann Gustafson, East Bay Municipal Utility District

   The project manager will be responsible for gaining participation from end-users, coordinating metering and installation process, analyzing the data, completing the reports and disseminating the results to the water industry.

2. External cooperators.
   Mike Ferrara is the General Manager for C&A X-Ray, which is the sole vendor of this technology. C&A X-Ray will be responsible for installing the equipment

3. There are 34 hospitals within our service area with an estimated 100 photo processing machines among them.

4. Partnerships.

East Bay Municipal Utility District has a letter of support from Santa Clara Valley Water District Project. Other regional agencies have expressed the desire to participate in product training seminars and hope to resolve internal review processes to enable implementation of this technology in their service areas. Project results will build further support for this water saving technology across the state. (See Attachment 2, *Maps of Geographic Boundaries of the Project)*

E. Costs and Benefits

1. Budget summary and breakdown.

ITEM	DETAIL	AMOUNT
Salaries/ Benefits:	450 hours @ $96.00/hour inclusive of benefits	$43,800
Equipment:	45 Water Saver/Plus and pumps @ $4195	
	+ est 10% tax	$207,000
Total		**$250,800**

East Bay Municipal Utility District will contribute $112,500 to cover the cost of their own salaried positions, benefits and portions of the equipment expense.

Agency contribution: $112,500

Grant contribution: $138,300

2. Budget justification.
   The salaried hours are broken out under section B.5 Schedule.
   Equipment is described under section B.4 Methods, procedures and facilities.

3. Benefit summary and breakdown.
   All benefits are calculated in Attachment 1 in terms of reduced potable water demand and sewer flows. Reduced water and sewer flows also result in reduced need for power (for pumping and treating water). However, since the exact reduction in kilowatts is not known, those benefits are not calculated in the Attachment.

4. Assessment of costs and benefits.
   See Attachment 1.

F. Matching Funds Commitment Letter

A. East Bay Municipal Water District

Letters will be submitted when this proposal is selected for funding, along with other documents required at that time

Leann Gustafson

EDUCATION

University of San Francisco, BS, Information Systems Management, 2000

Professional History

EBMUD, Water Conservation Representative, 2000-to date

Gustafson Design & Construction, Owner, 1990-to date

Experience

Water Conservation Representative, EBMUD

- Design and implement CII water efficiency programs. Currently responsible for water efficiency surveys and incentive programs within the institutional end use category. Responsible for financial monitoring and reporting, coordinating services with consultants, drafting contracts, marketing and public outreach, and engineering reviews of proposed technological implementations.
- Serve on Unaccounted for Water internal committee. Responsible for coordinating internal audits and reporting functions of District facilities. Formulate internal review processes. Perform detailed data and system analysis.
- Responsible for data collection and database maintenance for institutional clients. Develop and implement Geographical Information System (GIS) applications for spatial data analysis of water conservation strategies.
- Structure community presentations and training workshops to advance public awareness of water conservation practices and agency support.
- Project Manager on a Joint Agency X-ray Recycling Model Project. Responsible for coordinating with Department of Water Resources and participating agencies to complete a study of the conservation potential of new recycling technology for photo processing machines.
- Project Manager for a Proposition 13 grant to study on-site recycling of the wastewater streams of water features at the Oakland Zoo.

Owner, Gustafson Design and Construction

- Operate general contracting firm, California license # 593-969.
- Supervise construction of various light commercial and residential projects in the Greater Bay Area. Responsible for design, construction and financing. Supervise subcontractors, staff, and customer contact. Full knowledge of all applicable codes and regulatory compliance issues.

X-Ray Processor Recycling Capital Outlay Project. **Attachment 1**.
Principal: East Bay Municipal Utility District

C & A Water Saver/Plus Water Usage Estimate Per Unit

Operations: 4 gallons/hour * 24 hours * 365 days	35,040	gallons per year
Bi-weekly refill: 15 gallons * 52 weeks * .5	390	gallons per year
Manufacturer's calculated water use	35,430	gallons per year
Rinsing during cleaning: 7 gallons * 52 weeks * .5	182	gallons per year
Total Estimated Yearly Water Use	**35,612**	gallons per year

Estimating Water Savings Per Unit Installed

	Lowest Unit*	***Mid Level***	***Highest Unit****	
Published Manufacturers' Flow Rates	0.2	1.0	2.5	gallons per minute
Rate per minute * 24 hours * 365 days	105,120	525,600	1,314,000	gallons per year
less Water Saver/Plus rate	35,612	35,612	35,612	gallons per year
Estimated Savings	**69,508**	**489,988**	**1,278,388**	gallons per year
% Reduction	**66%**	**93%**	**97%**	
Convert to Hundred Cubic Feet	93	655	1,709	CCF saved per year
Conver to Acre Feet	0.21	1.50	3.92	AF saved per year

Estimating Water Savings For Total Project

EBMUD: 45 units	9.60	67.67	176.55	AF saved per year
Subtotal	**9.60**	**67.67**	**176.55**	**AF saved per year**
Life cycle	10	10	10	years
Grand Total	**95.99**	**676.67**	**1,765.45**	**AF saved, total project**
Project Cost	$250,800	$250,800	$250,800	
Cost per AF	**$2,613**	**$371**	**$142**	
Agency portion ($112,300)	**$1,170**	**$166**	**$64**	**Cost per AF, total project**
Grant portion ($138,500)	**$1,443**	**$205**	**$78**	**Cost per AF, total project**

Estimating the Value Per Unit Installed to the End-User

Variable rates (water + sewer + other)

EBMUD:	Value to customer @ $3.55/CCF (est)*	$330	$2,325	$6,067	Annual savings

*rates vary within agency service area by communities served

Estimating the Value Per Unit Installed to the Water Agency

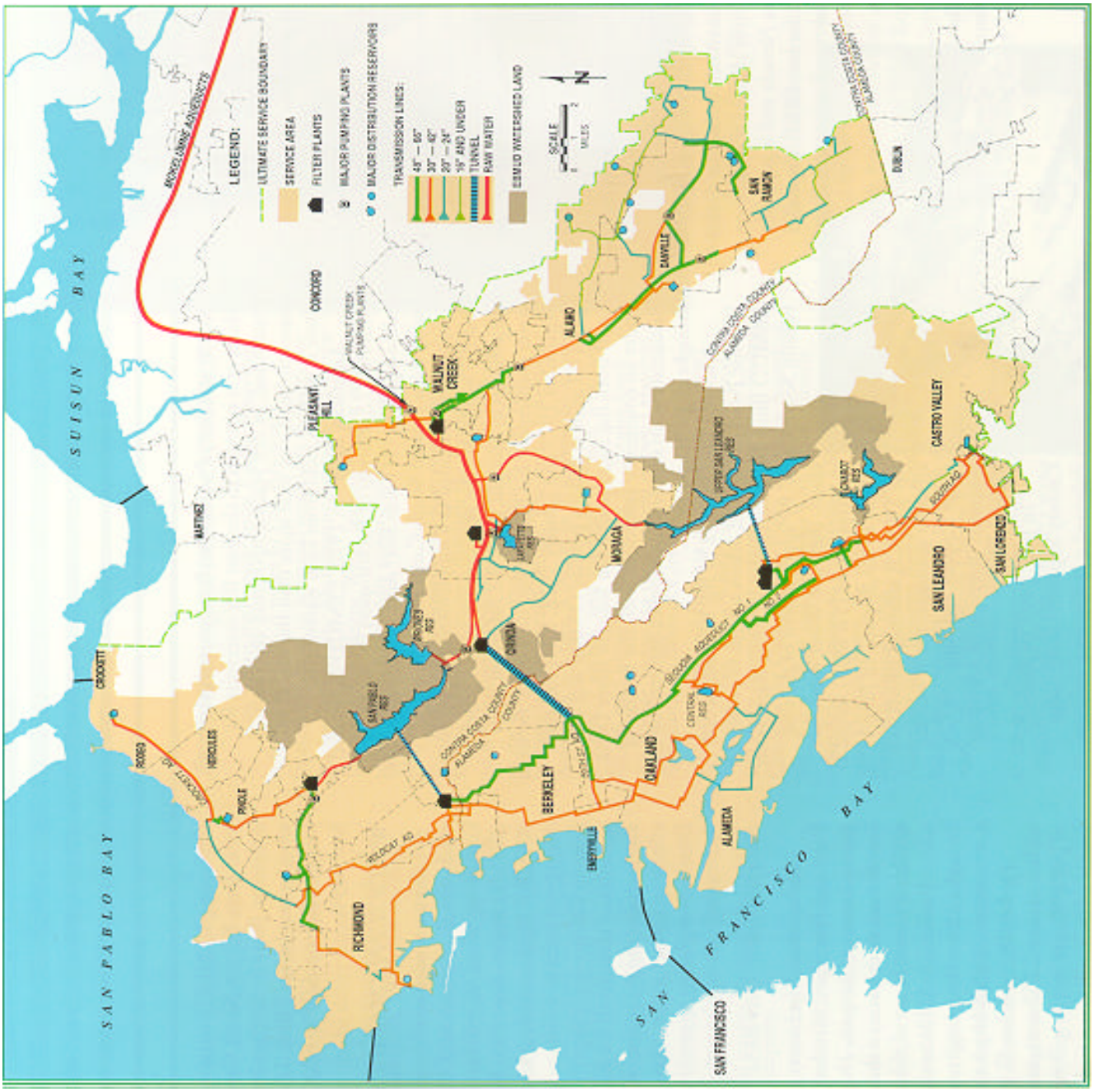
East Bay Munipal Utility District

Marginal cost of water	$250	$250	$250	
Value to water agency	$53	$376	$981	Annual savings
Present Value of saved water	$392	$2,767	$7,219	Discounted @ 6% for 10 years
Agency investment	$2,500	$2,500	$2,500	
Internal Rate of Return	0%	8%	38%	Invested @ 6%, 10 years

*The highest volume units are most common. The lowest volume unit is rare.

Attachment 2: Map of Geographic Boundaries of the Project

EAST BAY MUD'S SERVICE AREA



Proposed Breakdown of Proposition 13 Funding for X-Ray Capital Outlay Project **Attachment 3.**

TIME	TASK	BUDGET ITEM	AMOUNT	EBMUD HRS.	EBMUD $	
Oct. 2002	Execute Final Contract	10 hours of agency	$960	10	$431	Agency
Oct. - June 2003	Finalize arrangements with				$0	Rate:
	hospitals & participating				$0	$96 per hour
	agencies.	274 hours, agency time	$26,304	274	$11,799	(inc. of benefits)
Jan. 2003	1st Quarter Report	14 hours, agency time	$1,344	14	$603	
Oct. - July 2003	Retrofit x-ray processor equipment	All vendor costs and			$0	
		equipment in one sum.	$207,600		$93,122	
Oct.- Sept. 2003	Administer Contract details with				$0	
	participating agencies,	24 hours, agency time	$2,304	24	$1,033	
July 2003	All records submitted to lead agency	8 hours, agency time	$768	8	$344	
April 2003	2nd Quarter Report	14 hours, agency time	$1,344	14	$603	
Oct. - July 2003	Customer follow-up, monitoring, and				$0	
	assessment.	50 hours, agency time	$4,800	50	$2,153	
July 2003	3rd Quarter Report	14 hours, agency time	$1,344	14	$603	
August 2003	Submit results for publication				$0	
	Presentations (if requested)	28 hours, agency time	$2,688	28	$1,206	
September 2003	4th (and final) Quarter Report	14 hours, agency time	$1,344	14	$603	
Total			$249,840	450	$112,500	
	Agency contribution at $2,500/machine				$112,500	
	Balance due from Proposition 13 Grant				$138,300	

RICHARD W. HARRIS, P.E.
MANAGER OF WATER CONSERVATION

EAST BAY MUNICIPAL UTILITY DISTRICT

As Water Conservation Manager, Richard Harris oversees the development and implementation of EBMUD's Water Conservation Master Plan in support of long-term water supply and demand management goals. With an annual budget of more than $5 million, and a total projected program budget of $92 million, EBMUD's water conservation efforts represent one of the largest staffed and budgeted conservation programs among major water utilities in the state. Mr. Harris is a licensed civil engineer and has been at EBMUD for more than 11 years. Prior to joining the Water Conservation Division, he managed the District's Water Recycling Program. Mr. Harris continues to serve as a District spokesperson on water use efficiency. Mr. Harris also serves as the EBMUD Energy Conservation Coordinator to the California Flex Your Power Campaign. Mr. Harris has more than 17 years experience in the environmental systems planning, engineering and resource management, and worked a number of years in the private sector specifically in the environmental engineering and energy management fields for Combustion Engineering Environmental, Inc. and Guaranteed Energy Savings, Inc.

Key Experience:

4/99 – Pres. *Manager of Water Conservation - EBMUD*
Responsible for managing the District's Water Conservation Division and directing the planning and implementation of the Water Conservation Master Plan to achieve 34 million gallons per day in water savings by the year 2020. Manage 19 professional staff and administer a $92 million capital and operating program budget, totaling in excess of $5 million annually.

4/98 - 4/99 *Senior Civil Engineer – EBMUD, DERWA*
Supervisor of ten professional staff in the Office of Reclamation and Wastewater Planning Sections. Served as the Engineering Program Manager for the DSRSD-EBMUD Recycled Water Authority, responsible for supervising and implementing a joint $90 million water recycling project. Served as a member of the Executive Management Board and Chair of the Finance Committee for the Bay Area Regional Water Recycling Program.

11/96 - 4/98 *Supervising Administrative Engineer – EBMUD*
Program Manager for $120 million Water Recycling Program. Responsible for planning and administration of new capital projects ($7M - $60M), operating projects ($38M) and consultant management. District spokesperson on all water recycling matters with the community and elected officials.

7/87 - 7/89 *Technical Engineer – Combustion Engineering Environmental, Inc.*
Conducted environmental science and engineering field operations. Participated in all phases of the Materials Damage Study for the California Air Resources Board, including site installation and monitoring, sample preparation and processing, and report writing. A member of technical

team conducting field services for the Rocketdyne Wastewater Sampling Program. Services included flow meter installation and calibration, channel design, field sampling, laboratory preparation and report writing.

1/85 - 11/86 *Manager, Southern Pacific Region/Conservation Engineer - Guaranteed Energy Savings, Inc.*

Responsible for field service activities in California, Arizona, New Mexico and Texas. Responsibilities included marketing, new project development, site surveys, and management support of energy conservation systems for contracts exceeding $2 million. Performed computer system installation and complete electrical system support. Directed the work of the field electrical crews on energy savings programs; conducted contract negotiations.

Education:

Masters Degree, Civil Engineering, University of California, Los Angeles.
Bachelors Degree, Business Economics, University of California, Santa Barbara.
Bachelors Degree, Environmental Studies, University of California, Santa Barbara.

Affiliations:

Richard serves on the Board for the California Urban Water Conservation Council and is active in the American Water Works Association, Water Environment Federation and WateReuse Association.

Santa Clara Valley Water District

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AN EQUAL OPPORTUNITY EMPLOYER

February 25, 2002

Water Use Efficiency Office
California Department of Water Resources
1020 Ninth Street
Sacramento, CA 95814

Dear Staff,

The East Bay Municipal Utility District (EBMUD) is in the process of applying for Department of Water Resources' Water Use Efficiency Program Grant to fund a Water Saver/Plus X-ray processor demonstration project. Our agency is sending this letter to express our full support for this proposed program.

The goal of the Water Use Efficiency Program is to accelerate the implementation of cost-effective actions to conserve and recycle water throughout the State. The Water Saver/Plus X-ray processor demonstration project grant that EBMUD is applying for is designed to help achieve this goal.

We encourage the California Department of Water Resources to consider funding for this grant proposal.

Sincerely,

H Ashktorab

Hossein Ashktorab, Ph.D.
Unit Manager
Water Use Efficiency Unit
Santa Clara Valley Water District